

1 RECORD OF ORAL HEARING

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4 UNITED STATES PATENT AND TRADEMARK OFFICE

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7 BEFORE THE BOARD OF PATENT APPEALS  
8 AND INTERFERENCES  
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11 Ex parte SCOTT A. FLATNESS,  
12 and MICHAEL J. AARNIO  
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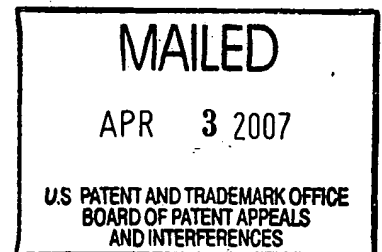
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15 Appeal 2007-0616  
16 Application 10/733,689  
17 Technology Center 1700  
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20 Oral Hearing Held: March 6, 2007  
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24 Before CHUNG K. PAK, CHARLES F. WARREN, and  
25 CATHERINE Q. TIMM,  
26 Administrative Patent Judges.  
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28  
29 ON BEHALF OF THE APPELLANT:

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1 The above-entitled matter came on for hearing on Tuesday, March 6,  
2 2007, commencing at 2:17 pm. at The U.S. Patent and Trademark Office,  
3 600 Dulany Street, Alexandria, Virginia, before Cindy L. Sebo, Notary  
4 Public.

5 JUDGE PAK: Mr. Slate and Mr. Coury -- is that correct?

6 MR. COURY: This is Mr. Slate. I'm Mr. Coury. I'm  
7 accompanying him on the argument, but I won't be saying anything else.

8 JUDGE PAK: Mr. Slate will be arguing the case?

9 MR. COURY: Yes.

10 JUDGE PAK: We have a court reporter, Cindy Sebo, on hand,  
11 who will transcribe the entire hearing, including all your arguments.

12 You may start any time you wish and you've got 20 minutes. And  
13 you can assume we know the issues, so you may want to focus on the  
14 dispositive issue in this case.

15 MR. SLATE: We have several issues going on. By way of quick  
16 background --

17 JUDGE PAK: Counsel, I think --

18 MR. SLATE: We have several issues going on. By way of quick  
19 background on the technology, the technology involves detonative  
20 cleaning, an example being where one has a conduit which has an upstream  
21 end and a downstream end. The downstream end is in communication with a  
22 vessel, such as a furnace, which has some sort of interior surface, such as a  
23 coil, to be cleaned.

1           Fuel and oxidizer are introduced to the conduit, their combustion  
2 is initiated, it causes a detonation, which produces a shockwave, the  
3 shockwaves discharged from the outlet impacts the surfaces to be cleaned  
4 inside the furnace and dislodges deposits. And this can be operated  
5 cyclically. One can fire it, discharge it, then wait until another cleaning  
6 needs to occur.

7           The present application involves methods, although there were  
8 nonelected apparatus claims, which was -- might be informative. Methods  
9 for preventing infiltration of contaminants from the interior of the vessel into  
10 the conduit -- again, conduit is like a long --almost like a cannon, where you  
11 fire shockwaves into the interior of the vessel.

12           In the exemplary hardware apparatus embodiment, what they  
13 have done in the present invention is to provide an introduction of a gas at a  
14 relatively downstream portion of the conduit close to the vessel.

15           The exemplary embodiment of the apparatus introduces this gas  
16 through a circumferential array of ports on the interior of the conduit to form  
17 a curtain. And there is discussion and claims regarding aspects of the  
18 curtain, including having the gas jets directed partially downstream as  
19 opposed to -- in addition to radially inward in the -- the conduit.

20           One of the reasons why one would have this location for  
21 introducing this -- this gas is that you are trying to prevent whatever is in the  
22 interior of the furnace from coming up into the conduit. So by locating it  
23 near the furnace --

24           JUDGE PAK: Well, Counsel, going back to your Claim 13, what  
25 do you mean by "effective to substantially resist upstream infiltration"?  
26 What do you mean by "substantially resist"? Is it resisting at all or --

1 MR. SLATE: Well, it's -- it's operationally resisting. The -- in  
2 any, I guess, fluid mechanic situation, one can have some sort of incidental  
3 situation going on, but the -- the function is to effectively resist the  
4 contaminants coming up into the conduit between the firings, between the  
5 cycles.

6 What we have for -- for references that are cited are two very --  
7 very different references, very different from each other. One of them is the  
8 Ruegg reference, which discloses in its Figure 3 the inflation of a -- of a  
9 balloon --

10 JUDGE PAK: Counsel, I'm asking you to define the meaning of  
11 the phrase "substantially resist a contaminant from upstream infiltration."  
12 Do you have any definition or -- in your specification?

13 MR. SLATE: I would have to check the specification. That's not  
14 one of the -- the issues on appeal, so I have not prepared that issue.

15 JUDGE PAK: Didn't you argue that as a distinguishing feature?

16 MR. SLATE: The resistance of the infiltration between the cycles  
17 is -- is a distinguishing feature. As for the reference to the word  
18 "substantially," I would have to spend more time and look at that -- that  
19 issue.

20 You know, when one has a -- when one fires such a device, it  
21 discharges material, but then, unless, as in this case, one continues to  
22 deliver some sort of gas or otherwise physically/mechanically blocks the --  
23 the conduit, one will have the potential for contamination from the interior  
24 of the furnace up into the -- the conduit.

1           And so in this case, what we have in several levels of -- of claims,  
2   from -- from the broad to the fairly specific, are ways of -- of doing that. The  
3   references really fail to disclose such thing, even if combined.

4           We have a situation in -- in background where there were a lot of  
5   112 indefinite rejection -- indefiniteness rejections, which caused various of  
6   the claim elements to initially not be considered, that these have been  
7   withdrawn. However, their withdrawal did not result, apparently, in their  
8   consideration.

9           Working -- working backward from the references, we have the  
10   two references. I mentioned Ruegg teaches the -- the inflation of a bag at  
11   the end of -- of a balloon or at the end of a conduit, and the examiner has  
12   referred to a passage which basically says that the conduit that inflates the  
13   balloon can be purged with air, a -- a purge to remove the byproducts of the  
14   combustion that occurs within the conduit.

15          There's -- there's no reference to any use of an airflow or other gas  
16   flow to resist upstream infiltration. And in that Ruegg situation, it doesn't  
17   seem such thing would be possible because the end of this device is sealed  
18   by the balloon.

19          We also have the Plavnik, et al. patent which is another very  
20   different device, but appears to discharge shockwaves into the vessel's  
21   interior.

22          And, again, the examiner has, at best, asserted that there can be an  
23   air purge of Plavnik. There's no indication of any use of an  
24   airflow between cycles to -- to reduce -- to resist the upstream flow of -- of  
25   contaminants in general, as in the broad claim.

1           And then we have some very specific dependent claims which have  
2 also been -- been rejected, which are clearly not suggested by any of the  
3 hypothesized purge combination uses. We have, for example, Claim 16,  
4 which identifies that the gas is introduced through a gas port in a  
5 downstream-most 20 percent of the flow path length.

6           Again, as I mentioned before, that can serve to isolate everything  
7 upstream from that point from the contamination -- you know, possible  
8 contamination. It lets you also do things -- other things.

9           We've got other issues, like Claim 19, which identifies  
10 introduction of the gas at a plurality of circumferential locations to form a  
11 curtain of gas.

12           As I mentioned in the exemplary apparatus embodiment, they have  
13 a circumferential array of apertures which discharge air, you know,  
14 between the firing cycles to resist upstream flow of contaminants from the  
15 furnace.

16           Now, there's no suggestion in any of the references, even looking  
17 at the hypothesized modifications for purge purposes, to locate a flow  
18 in the downstream portion, because if you were purging, you would purge  
19 from the upstream end to blow all the contaminants -- the residuals of the  
20 combustion products out.

21           There's also no -- similarly no reason for this -- this curtain,  
22 because, again, if one is purging from the upstream end, one is just --  
23 can just fire straight down the -- the conduit rather than being very close to  
24 the end forming a curtain that blocks the upstream flow of contaminants  
25 from the vessel interior.

1           We also have Claim 20, which identifies a continuous introduction  
2 of the gas. The specification says that this can be continuous, you know,  
3 even through the -- the firings of the apparatus.

4           Again, a purge, by definition, is intermittent, brief, right after the  
5 firing, and then nothing more until after the next firing.

6           Claim 21 identifies the introduction with a radially inward velocity  
7 component and a downstream velocity component. I believe that relates to -  
8 - I think Figure 16 is one example of that. That was one of the areas, among  
9 several, where there was a 112 rejection, which has been withdrawn, but,  
10 you know, not -- does not appear to have been fully reconsidered after the  
11 withdrawal of the -- of the 112.

12           And really, there's no suggestion in the references that any form of  
13 routine optimization would yield this radially inward and has the  
14 circumference of the tube -- it goes radially inward, but also longitudinally  
15 downstream, the jets are angled downstream to further enhance the flow  
16 toward the outlet away from the inlet -- inlet end.

17           Claim 22 also identifies a tangential flow. And another important  
18 claim to just more clearly, fully distinguish a purge is that Claim 23  
19 identifies that the gas is supplemental to a purge flow introduced separately.

20           So Claim 23 implies that you have a separate purge flow and you  
21 have a purge flow. It is also separate, so that can be a purge flow at  
22 an upstream end --

23           JUDGE PAK: Counsel, may I ask you a question?

24           MR. SLATE: Sure.

1 JUDGE PAK: Is Claim 23 a new claim or introduced during the  
2 prosecution or is it an original claim?

3 MR. SLATE: Well, I believe 23 was probably introduced during  
4 prosecution.

5 JUDGE PAK: Do you have support for this statement anywhere in  
6 the specification?

7 MR. SLATE: Again, I would have to look for it, but I believe it  
8 would be. I can -- I have the publication in front of me and can scan  
9 it if that's believed necessary, although -- yes, Paragraph -- I'm at Paragraph  
10 42 of the Pregrant Publication 2005, 0126595.

11 Paragraph 42 as published, in operation, the gas flow may  
12 supplement or replace a baseline continuous purge gas flow. And that's --

13 JUDGE PAK: What paragraph in your specification?

14 MR. SLATE: Well, I'm just -- right now, I'm looking at, again -- in  
15 just one -- one of probably several areas. I'm looking at the paragraph that's  
16 numbered 42 of the Pregrant publication. I don't know which paragraph that  
17 falls into of the as filed application. If it's numbered, it should be the same.

18 JUDGE PAK: Do you have any other arguments?

19 MR. SLATE: As I mentioned, you know, one overarching  
20 argument is that I think there were -- the 112 issues that were improperly  
21 made that have been -- have been withdrawn, but a full reconsideration of  
22 the claims after withdrawal of the 112 rejection hasn't been made and -- and  
23 should be made.

24



1           The -- on the combination, again, you've got two very different  
2 references. Ruegg involves inflating a bag and it involves purging the  
3 combustion byproducts from the conduit into the bag.

4           Plavnik appears to represent more of an open conduit situation, but  
5 neither has been cited for more than a discrete purge. Neither has  
6 effectively been cited for the -- the downstream location. Ruegg, I think  
7 Element 30, was cited for this, but is clearly at the upstream end of  
8 the conduit in -- in question.

9           And there's just no -- no suggestion for any of the -- the particular  
10 details that I mentioned clearly in the dependent claim that are particular to  
11 this prevention of reinfiltration as distinguished -- as might be distinguished  
12 from a purged use.

13           JUDGE PAK: Any questions?

14           JUDGE WARREN: No questions.

15           JUDGE TIMM: No questions.

16           JUDGE PAK: Thank you for coming.

17           (Whereupon, at 2:17 p.m., the hearing was concluded.)